

IN THE CLAIMS

What is claimed is:

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1. A slurry comprising a mixture of:

between about 0.01 mole and about 0.1 mole per liter of an organic acid salt;

between about 1% and about 20% by volume of an abrasive; and

an oxidizer.

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2. The slurry of claim 1 wherein the organic acid salt is a carboxylic acid salt.

3. The slurry of claim 1 wherein the organic acid salt is a citric acid salt.

4. The slurry of claim 3 further comprising citric acid, and wherein the total amount of citric acid and citric acid salt that is included in the mixture is between about 0.01 mole and about 0.1 mole per liter of slurry.

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5. The slurry of claim 1 wherein the mixture has a pH that is between about 2.5 and about 12.

6. The slurry of claim 5 wherein the mixture has a pH that is greater than about 7.0.

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7. The slurry of claim 1 wherein the abrasive is a silica based material.

8. The slurry of claim 7 wherein the silica based material has a surface area that is between about 5 and about 600 m²/g.

9. The slurry of claim 1 further comprising a corrosion inhibitor.

10. The slurry of claim 9 wherein the mixture includes between about 0.001 mole and about 0.05 mole per liter of benzotriazole.
11. The slurry of claim 1 further comprising a surfactant.
12. The slurry of claim 11 wherein the mixture includes less than about 0.1 wt% of cetyltrimethylammonium bromide.
13. The slurry of claim 1 further comprising a biocide.
14. The slurry of claim 13 wherein the mixture includes less than about 300 ppm of the biocide.

15. A slurry for polishing a barrier layer comprising a mixture of:
between about 0.01 mole and about 0.1 mole per liter of a citric acid salt;
between about 1% and about 20% by volume of a silica based abrasive; and
between about 0.0004 and about 2 moles per liter of an oxidizer.

16. The slurry of claim 15 wherein the mixture has a pH that is greater than about 7.0.
17. The slurry of claim 15 further comprising between about 0.001 mole and about 0.05 mole per liter of a corrosion inhibitor.
18. The slurry of claim 17 wherein the corrosion inhibitor is selected from the group consisting of benzotriazole, a cetyltrimethylammonium halide and cetyltrimethylammonium hydroxide.
19. The slurry of claim 15 further comprising less than about 0.1 wt% of a surfactant.

20. The slurry of claim 19 wherein the surfactant is selected from the group consisting of cetyltrimethylammonium bromide, cetyltrimethylammonium chloride, cetyltrimethylammonium hydroxide, a quaternary ammonium halide, dimethyl silicone ethylene oxide, and an alkyl polyethylene oxide.

21. The slurry of claim 15 further comprising less than about 300 ppm of a biocide.

22. A slurry for polishing a barrier layer that serves to isolate a copper layer from a dielectric layer comprising a mixture of:

between about 0.01 mole and about 0.1 mole per liter of a citric acid salt selected from the group consisting of potassium citrate and ammonium citrate;

between about 1% and about 20% by volume of a silica based abrasive; and

between about 0.0004 and about 2 moles per liter of an oxidizer.

23. The slurry of claim 22 wherein the mixture has a pH that is greater than about 7.0.

24. The slurry of claim 22 further comprising between about 0.001 mole and about 0.05 mole of a corrosion inhibitor.

25. The slurry of claim 22 further comprising less than about 0.1 wt% of a surfactant.

26. The slurry of claim 22 further comprising less than about 300 ppm of a biocide.